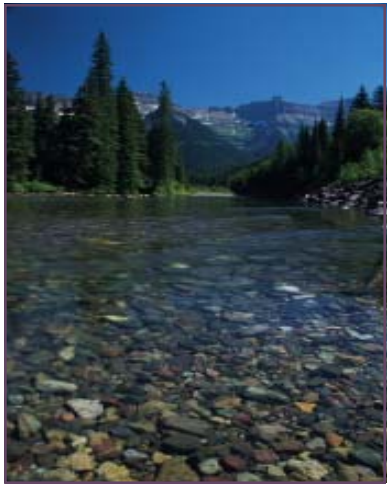
Our Montana Environment

Primer on Health & Environmental Determinants

Montana Environmental Public Health Tracking Program 2005

Foreword

Environmental Public Health Tracking seeks to protect the quality of life in Montana through monitoring trends in health and environmental hazards.



Montana is known for its beauty and wide open spaces. Our environment contributes to our quality of life and state of health. The Montana Department of Public Health and Human Services (DPHHS) and the Montana Department of Environmental Quality (DEQ) seek to protect the quality of life in Montana by monitoring trends in health and environmental health hazards. In 2002, the departments jointly began developing a collaborative "Environmental Public Health Tracking" program. This initiative is part of a nationwide planning effort led and administered by the Centers for Disease Control and Prevention (CDC).

Environmental Public Health Tracking (EPHT) initiates collaborative efforts between public health and environmental protection departments to examine the associations between disease and the environment. A primary goal of the EPHT program is to better monitor patterns and changes in chronic diseases, environmental health hazards, and human exposure to hazards. Through improved monitoring of trends we can better guide prevention efforts and policy decisions. While this initiative will not provide all the answers, it will allow the departments to use existing data for investigations and research concerning health and the environment.

We look forward to working together and with other agencies to efficiently monitor changes in health and the environment to improve the quality of life and protect the health of Montana's citizens.

Dr. Robert Wynia
Director, Montana Department of Public Health and Human Services

Richard H. Opper
Director, Montana Department of Environmental Quality

Executive Summary

There is a lack of coordination between environmental regulatory agencies and public health agencies to connect the monitoring of environmental health hazards with trends in certain chronic diseases, birth defects, and learning disorders. This disconnect hinders national and state efforts to reduce and eliminate diseases that might be prevented through better management of environmental factors.

Environmentally related diseases were estimated to cost Montanans $404.6 million dollars in 2003. This is a conservative estimate determined by assigning only a fraction of the costs of environmentally related diseases and conditions to the environment based on the current state of knowledge.

The development of a national environmental public health tracking program will improve our ability to examine the relationships between disease and the environment. The Centers for Disease Control and Prevention (CDC) is leading this effort. Montana is one of the pilot states funded to participate in developing an environmental public health tracking system.

The Environmental Public Health Tracking (EPHT) initiative is in its initial stages. This report describes the goals of the tracking initiative and outlines key environmental health concerns in Montana.

The lack of comprehensive data is not only an issue in Montana, but is endemic in our country's system of monitoring health and envrionmental health hazards. Data collected by environmental and health entities within the state are neither comprehensive nor standardized. Developing the capacity to enhance surveillance of health and environmental trends will take time. It can best be achieved through interagency collaboration and partnerships with local and tribal health departments, universities, and advocacy groups. A strategic planning session held in February 2005 assisted in providing direction for EPHT in Montana for the next five years.

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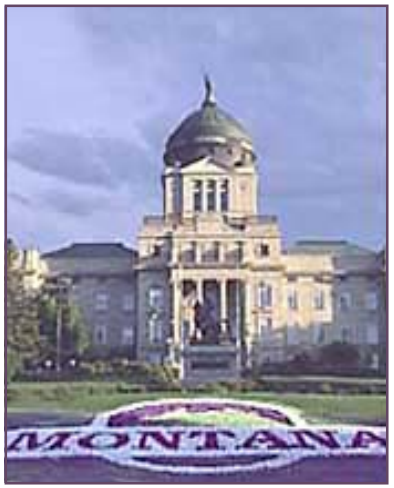
The Environmental Health Gap



The Pew Environmental Health Commission released a report in September 2000 titled "America's Environmental Health Gap: Why the Country Needs a Nationwide Health Tracking Network." The report notes that America needs to focus on how pollutants impact chronic disease, birth defects and human development. This lack of focus hinders national efforts to reduce or eliminate diseases that might be prevented through better management of environmental factors.

Recent advances in mapping the human genome have given researchers a better understanding of how genetic predisposition interacts with behavioral and environmental factors leading to chronic diseases. However, we lack the essential ability to comprehensively track information on who has chronic diseases and who has been exposed to environmental pollutants - information essential to advancing our knowledge of disease prevention. Accordingly, the Pew Environmental Health Commission recommended the establishment of a nationwide health tracking network.

In response to the Pew report, the U.S. Congress passed Senate Bill 2045, "The Nationwide Health Tracking Act," in March 2002. Congress appropriated $17.5 million in fiscal year 2002, $27.5 million in fiscal year 2003, and $27.4 million in fiscal year 2004 for CDC to develop a nationwide Environmental Public Health Tracking system.

Montana was one of the first states to pass health tracking-related legislation. In 2001, Montana House Bill 582, authored by Representative Gail Gutsche, required a feasibility study to investigate the need for a chronic disease registry. While the title used in 2001 focused on chronic disease, the concept included monitoring related environmental hazard data. The feasibility study was completed by Montana DPHHS in August 2002.

America needs to focus on learning how pollutants impact chronic disease, birth defects, and human development.

The early passage of state legislation and completion of a feasibility study in Montana led to it being one of 17 states initially selected to receive funding from the CDC Environmental Public Health Tracking Branch. This funding allowed Montana to begin planning and capacity-building activities starting in October 2002.

The Vision of Environmental Public Health Tracking:

Healthy Informed Communities

The Statewide Environmental Public Health Tracking Advisory Council recommends the following guiding principles for the development of the EPHT initiative in Montana:

1. All Montanans have the right to information on disease factors to optimize their health and the health of future generations.
2. Prevention is a priority in promoting environmental health.
3. Collaboration is essential to the success of this effort.
4. Data utilized by the tracking network are precise, accurate, and standardized to track known and suspected environmental hazards.
5. Interpretations of data and recommendations are based on the preponderance of the best science and the precautionary principle.*
6. Information gained can facilitate the formulation of public policy.

**Precautionary Principle: The ethical theory that if the consequences of an action, especially concerning the use of technology, are unknown but are judged by some scientists to have a high risk of being negative from an ethical point of view, then it is better* not to carry out the action *rather than risk the uncertain, but possibly very negative, consequences.*
(Definition from http://en.wikipedia.org)

The Environment and Our Health

Exposure to hazards in the environment can affect our health...It is important to monitor trends of environmental hazards and health effects to ensure that future generations can reach their full potential.

Many factors contribute to human health. Some factors can be modified and some cannot. We are born with a given set of genes. Those genes determine our predisposition for how environmental and lifestyle factors may impact our health. Research has shown that a family history of diabetes, cancer, or heart disease can increase the risk of developing any one of these diseases.

An individual's lifestyle interacts with genetic predisposition to determine health. Tobacco use, poor diet, lack of exercise, stress, and excessive alcohol use are known to contribute to an increased risk of chronic disease. While behaviors are often the result of personal choices, they may be influenced by poverty, isolation, and lack of education or lack of preventive health care.

Exposure to hazards in the environment also interacts with other factors to determine our health. For example, exposure to asbestos can lead to chronic lung disease; lead exposure can result in mental retardation and learning disabilities; mercury and arsenic exposure can damage the nervous system; and air pollution can damage lungs and exacerbate asthma and other chronic lung diseases.

Vulnerability to environmental hazards is not the same in all individuals, given the interaction of multiple factors. Age is also a consideration. Young brains and nervous systems are still developing, so a small exposure can produce greater harm. If for no other reason than that, it is important to monitor trends of environmental hazards and health effects to ensure that future generations can reach their full potential.

Montana in Perspective

The state of Montana covers 146,000 square miles and is known for its vast open spaces and mountain valleys. It is a place of extremes in temperature and moisture. Historian K. Ross Toole wrote, "The land itself is at once mountainous and flat, hot and cold, beautiful and terrible, and benign and malevolent." There are over fifty mountain ranges across the state, mostly in western Montana. The central and eastern parts of the state are predominately semi-arid plains, with a few scattered smaller mountain ranges.

The history of economic development since statehood was often marked by "exploitation, overexpansion, boom and bust" (Toole). Mining, logging and ranching were once the dominant sources of livelihood. The state provided an abundant source of gold, copper, and vermiculite along with other natural resources. Today, the contribution of agriculture, forestry and mining combined make up only 6.5% of the state gross domestic product. The economy is now dominated by trade, financial activities, healthcare, and tourism (Montana Census and Economic Information Center, 2004).

The population in Montana has grown steadily in recent decades from fewer than 700,000 residents in 1970 to over 926,000 in 2004. Some areas have experienced growth rates of 20-44% in the past decade. Overall, Montana remains rural in character with the majority of the population clustered in and around small cities. Only one city, Billings, has a population over 85,000. There are eleven American Indian tribes with seven reservations scattered across the state. American Indians make up 6.2% of the population according to the 2000 census. The 2000 census also shows that 14.6% of Montanans live below the poverty level, compared to 12.4% nationwide. According to a report by the United Health Foundation in 2004, 19.4% of Montana citizens are without health care insurance. This compares with a national rate of 15.6% uninsured.

Montana Counties & Tribal Lands

Environmentally Related Diseases

Since 1900, the average lifespan has increased by 30 years in the U.S. Ninety-five percent of this increase is a result of improved environmental conditions. Improved sanitation, water quality, and waste disposal have allowed infectious diseases to decline as the leading causes of death. Now chronic diseases have become the major killers. Worldwide, 40% of all deaths can be attributed to environmental exposures such as tobacco use, water pollution, and land degradation. While some ties between chronic disease and the environment have been well-studied (such as air quality and breathing difficulties), others are under investigation. Some of the environmentally related diseases that are being studied include: asthma, cancer, respiratory illnesses, cardiovascular disease, neurological diseases, autoimmune diseases, and learning disabilities. Some birth defects are also known or suspected to be related to environmental exposures.

The Cost of Environmentally Related Diseases

Based on current knowledge, the total estimated costs of environmentally related diseases in Montana for 2003 was $404.6 million, a measure reflecting health care costs statewide and lost productivity costs in the Montana economy. These costs for environmentally related diseases represent 10% of total spending on health care in Montana.

The estimated costs were derived by using an "environmental attributable fraction." The environmental attributable fraction is the percentage of a particular disease category that would be eliminated if environmental risk factors were reduced to their lowest feasible levels. Attributable fractions ranged from 100% in the case of child lead poisoning to 5% for some neurobehavioral disorders (California Environmental Health Tracking, 2002; Montesanto and Hall, 2001; Landrigan, et. al., 2002). The complete cost analysis report can be found at the Montana EPHT website at *www.dphhs.mt.gov/epht*.

Disease	2003 National Costs	2003 Montana Costs
Child Lead Poisoning	$63 billion	$188.9 million
Childhood Asthma	$2.9 billion	$8.7 million
Neurodevelopment Disorders	$13.5 billion	$40.5 million
Birth Defects	$19.1 billion	$57.3 million
Cancer	$36.4 billion	$109.2 million
Total	**$134.9 billion**	**$404.6 million**

Data Sources: Centers for Disease Control, http://www.cdc.gov/nccdphp/; California Policy Research Center, www.ucop.edu/cprc.
American Cancer Society overall cost estimates of cancer (Centers for Disease Control, http://www.cdc.gov/nccdphp/) for the U.S. in 2002 were modified for Montana by a) updating the $170 billion [$110 billion for lost productivity and $60 billion for direct medical costs] to 2003 using 7.1 percent increase in national health care spending between 2002 and 2003; b) applying the 20% environmental attributable fraction; and c) taking Montana share of U.S. population, a value of .3% [decimal form=.003] as a benchmark for deriving the state share of the $36.4 billion in national 2003 cancer costs.
National cost estimates for the environmental related childhood diseases (California Policy Research Center, 2004; Landrigan, et. al. 2004) were modified using a population share approach for child lead poisoning, asthma, neurodevelopment disorders, and birth defects. Montana's share of national populations in childhood age cohorts [.3% which is the same as Montana's share of overall national population] were applied to the national cost estimates of environmentally related childhood diseases.

Monitoring Trends of Environmentally Related Diseases & Conditions

National surveys have found increasing evidence that autoimmune disorders, such as Lupus, learning disabilities, asthma, and neurological conditions, such as migraines and multiple sclerosis, are increasing. Most states, including Montana, do not require reporting of these conditions nor other chronic diseases such as Parkinson's disease and chronic lung diseases.

A registry is a record of all reported cases of a particular disease or condition. Montana's Department of Public Health and Human Services maintains a cancer registry and a birth defects registry. These registries compile information reported by health providers to monitor trends. Registries are expensive to maintain and require diligent reporting and case ascertainment to ensure accuracy. There is often a lag time of a year or more between occurrence or diagnosis and entry into a registry.

Birth and death certificates provide a method to monitor other types of trends. They provide information on reproductive outcomes, such as low birth weights, and the primary causes of death. Another source of information that allows the department to monitor health trends is an annual telephone survey of a representative number of adult Montanans. The Behavior Risk Factor Surveillance System (BRFSS), collects self-reported information on a number of health questions which vary somewhat from year to year. The Montana EPHT program added additional questions to the BRFSS telephone survey in 2004 and 2005 related to chronic disease and environmental health issues. While self-reported data have inherent limitations, such data does provide important health trend information not available by other means.

Autoimmune disorders, learning disabilities, asthma, and neurological conditions are increasing nationwide.

Hospital discharge data is used in some states as a surveillance tool to monitor trends in chronic diseases. This data can be useful for examining trends of admissions for specific diseases and conditions. This data does have limitations because chronic diseases such as asthma often do not require hospitalization. Montana's state public health department does not have access to hospital discharge data at this time.

A report called "Montana Measures of Environmental Health" is available on the Montana EPHT website, *www.dphhs.mt.gov/epht*. This report provides summary information on current measures of environmentally related health effects and environmental hazards collected in Montana.

Tracking Hazards & Human Exposure to Environmental Hazards

Environmental hazards are tracked by several state and federal agencies. Hazard data are collected to document regulatory compliance and monitor environmental quality. Hazard tracking is not the same as exposure tracking. Tracking information about the amount of a hazard in the environment (air, water, soil or fish samples) provides us with an indicator of the amount of hazard in the environment and the potential for human exposure.

Human exposure to a particular hazard can be determined by directly testing a sample of blood, urine or hair for a particular chemical. Examples include testing the level of lead or PCBs in human blood. While chemicals vary in how they are stored and how they break down over time, human sampling can provide insight into exposure. Other methods that are used to estimate human exposure include using hazard data and consumption patterns to estimate average exposure. Surveys can also be useful in estimating the risk of exposure to a hazard.

Occupational Illnesses

Montana's ability to track the health effects of work related injuries and illnesses is limited.

The Montana Department of Public Health and Human Services does not currently have a program to monitor occupational illness and injury. The Department of Labor and Industry regulates Worker's Compensation insurers and collects information to measure and evaluate the effectiveness of governmental efforts to reduce work related injuries and illnesses.

The Occupational Safety and Health Act of 1970 (OSHA) requires employers with more than ten workers to keep records for five years of all work-related deaths, diagnosed occupational illnesses, and any occupational injury that requires more than first-aid. The Department of Labor and Industry's Research and Analysis Bureau conducts an annual survey of employers to compile statistics on injuries and illnesses related to occupational exposure.

The state Department of Labor and Industry also receives data on worker's compensation claims processed by insurers. There are limitations to the use of this data for tracking health effects. While the location of the home office of the employer is provided, the Department does not necessarily receive information on the location where the exposure occurred. Reports provide codes for the type of illness or injury. However, coding may be done by the employer prior to the employee receiving a medical diagnosis. Multiple types of insurers report to Labor and Industry. Reporting formats are not always the same, which limits the ability to combine data from various insurers.

A recent example of how an occupational exposure can impact health was seen in Libby, Montana. The mining of vermiculite, which contains a form of asbestos, resulted in significant exposure (both occupational and second-hand) to asbestos. Inhaled asbestos particles can cause lung disease.

Public Perceptions of Environmental Health Risks

In 2004, the EPHT program gathered information from stakeholders concerning their perceptions of environmental health issues using a variety of methods. One method used was to conduct a survey of local officials, public health professionals and advocacy groups across Montana. Survey results are briefly described on page 14.

The EPHT project also funded nine county and two tribal health departments in 2004 to conduct local environmental health assessments. Training and monetary resources were provided to assist in conducting community surveys and analyze the results. Local health departments used the results to develop their lists of priority concerns and develop action items. A brief summary is found on page 15.

Together, the statewide surveys and community assessments provided the Montana EPHT Advisory Group with valuable information about what environmental and public health issues are perceived as most important across Montana. The Advisory Group reviewed the results of both the surveys and local assessments and developed the following list of priority environmental health concerns for Montana.

Priority Environmental Health Concerns in Montana

Priority Environmental Concerns

1. **Air Quality**
   - outdoor air pollutants (SO_2, CO, vehicle emissions)
   - indoor air pollutants
   - second-hand smoke
   - forest fires
2. **Water**
   - drinking water / groundwater quality
   - surface water quality
   - quantity / drought
3. **Heavy Metals**
   - lead, mercury, arsenic
4. **Pesticides**
   - includes herbicides and pesticides
5. **Growth and Development Issues**
   - urbanization
   - sprawl
   - cars / airpollution
   - septic systems contaminating water (elevated nitrates)

Priority Health Effects

1. **Cancer**
2. **Respiratory/Lung Disease**
3. **Birth Defects**
4. **Asthma**
5. **Cardiovascular Disease**

The Montana EPHT Advisory Group developed these lists based on the results of the statewide surveys and community assessments.

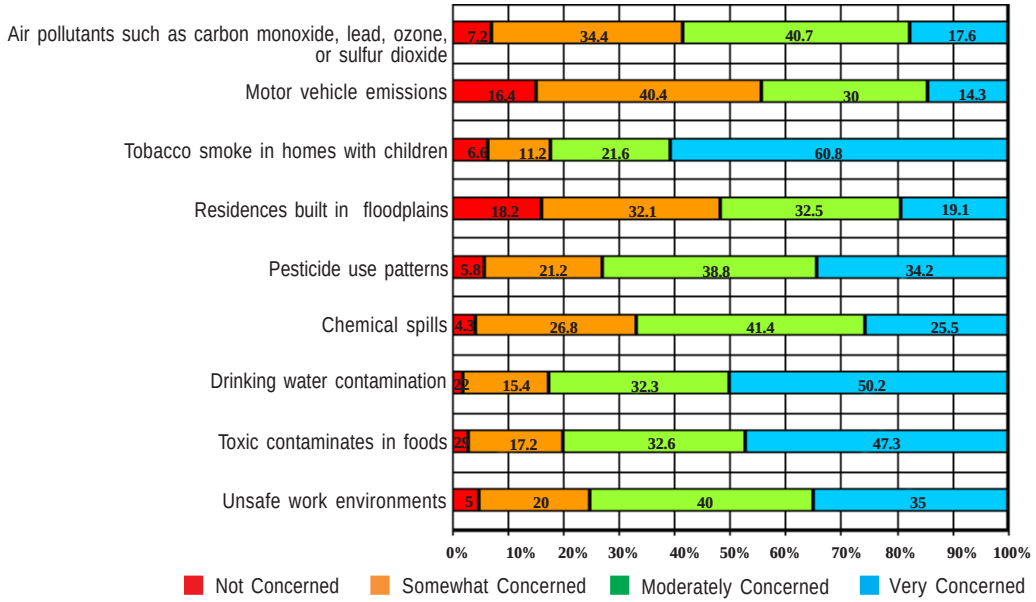
Statewide Environmental Health Surveys

Dr. Wade Hill, a professor at Montana State University (MSU) Bozeman College of Nursing conducted a series of surveys for the EPHT project in 2004. He surveyed a representative sample of county and tribal public health nurses, public health officers, sanitarians, extension agents, and county commissioners, in addition to many environmental and health-related advocacy groups in Montana. Consistencies in perception concerning priority health concerns were found among the six groups. Drinking water contamination was a top concern for respondents, and was in the top two concerns for all groups except county extension agents. Extension agents had residences built in flood plains as their top concern. The second most cited concern overall was tobacco smoke in the homes of children. Eighty percent of public health nurses, 81% of health officers, and 41% of county commissioners stated that they were 'very concerned' about this exposure.

Other top environmental exposure concerns listed by these six groups include toxic contaminants in foods, unsafe work environments, pesticide use patterns, and chemical spills.

Similarly, agreement was found for priority health conditions among the groups surveyed. With the exception of health officers, cancer was listed within the top two concerns for all groups. Other frequently cited concerns for health conditions include disease outbreaks attributed to food and water (nurses, sanitarians, health officers, county commissioners, and non-governmental organizations) and respiratory disease (health officers). A complete copy of the final report can be found at : *www.dphhs.mt.gov/epht*.

Priority Environmental Exposures Identified by Public Health Workers



County & Tribal Environmental Health Assessments

Nine county and two tribal health departments were funded to conduct county and reservation-wide environmental health assessments in 2004. The health departments involved their staff, health board members, and community members in developing a survey to gather information from citizens about their most important local environmental health concerns. Some departments further refined their survey results by conducting focus groups and holding community discussions. They then analyzed the input received and developed a list of priority concerns for further action.

The table at the right shows the major categories of environmental health concerns identified in the surveys. Water quality was the most common concern shared by the eleven sites. Other concerns that were important to citizens included indoor and outdoor air quality, trash and litter, exposure to West Nile Virus and Hantavirus from mosquitoes and rodents, respectively, and the use and disposal of hazardous substances and wastes.

Local assessment teams often defined environmental health broadly. The lack of community infrastructure and services to address social issues were included as concerns that impact the quality of the environment and health. Indeed it becomes difficult to separate factors such as the economy, behavior choices, and the environment because those factors influence each other. For example, an economic downturn can lead to an increase in empty housing, unemployment, and drug manufacturing which leads to further degradation of a community's environment.

The majority of sites included topics such as drug and alcohol abuse when designing their surveys. Illegal drug manufacturing and use, particularly methamphetamines, was the second most common concern identified in the eleven local assessments in 2004.

For a summary of survey results and a prioritized list of concerns at each site, see the Environmental Health Assessment Summaries 2004 on the EPHT website at: www.dphhs.mt.gov/epht.

Major Categories of Environmental Health Concerns

Water Quality
Includes concerns about drinking water supply quality, and surface and groundwater contamination.

Illegal Drug Manufacturing and Drug and Alcohol Abuse
Includes concerns about methamphetamine manufacturing and its associated contamination, as well as the use and abuse of drugs and alcohol and community attitudes about it.

Air Quality
Includes general concerns about both indoor and outdoor air quality from a variety of sources.

Trash and Litter
Includes concerns about littering along roads and streets and the lack of recycling programs.

Insects, Pests, and Associated Diseases
Includes concerns about exposure to West Nile Virus and Hantavirus and the control of mosquitoes and rodents.

Hazardous Substances and Waste
Includes concerns about the use and disposal of pesticides and herbicides, leaks and spills from storage tanks, and wastes associated with oil refining.

Pilot Project: Particulate Matter & Asthma, Western Montana

The University of Montana Center for Environmental Health Sciences conducted a pilot study for Montana EPHT in 2004. The purpose of the study was to assess the feasibility of collecting health outcome data from health care facilities and compare it to environmental data. The study utilized air pollution monitoring data collected from Western Montana and electronic health records from Missoula, Lake, and Lincoln counties. Western Montana communities are subject to high variations in particulate matter due to periods of inversions and smoke from wildfires. Particulate matter is small solid and liquid particles suspended in the air. Research studies have associated exposure to elevated levels of these particles in the air with damaging health effects. Fluctuations of particulate matter in the air were compared to hospital visits for respiratory, cardiovascular, and cerebrovascular conditions. Digestive complaints were included also as a control condition. The study looked at data from January 2000 through December 2003.

Urgent care and other outpatient clinics not associated with hospitals in the three-county area were asked to participate but did not provide data so the study focused on readily available data obtained from hospital sources.

Data analysis showed that increases in small particulate matter in the air were associated with increased hospital visits for asthma. These associations were particularly evident during periods of community exposure to smoke from nearby wildland fires and during periods of cold temperature inversions. There was a limited amount of information available on some cardiovascular diseases, and no consistent associations were observed with this group of conditions.

The pilot study showed that electronically available hospital data are a potentially useful resource for tracking some chronic conditions to examine trends. The topographical and meteorological features of the study areas in Western Montana allow unique opportunities to study particulate matter exposure in rural communities. Future data collection effort will focus on additional study areas, health data from non-hospital outpatient sources and multi-pollutant environmental data.

Electronically available hospital data are a potentially useful resource for tracking some chronic conditions to examine trends.

Environmental Justice & Vulnerable Populations

Environmental Justice means that "no group of people including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies."* Environmental exposure risk is not equal in all locations. For example low-income families often have fewer choices in where they live.

Some people within the population are more vulnerable to environmental exposures. People who are older, younger, or those with compromised immune systems are more impacted by environmental exposures. Children are more vulnerable for the following reasons:

- Children's nervous, immune, digestive, and other systems are still developing, and their ability to metabolize or inactivate toxicants may be different from adults.
- Children eat more food, drink more fluids and breathe more air in proportion to their body weight than adults.
- Children's behavior - such as crawling and placing objects in their mouths - may result in greater exposure to environmental contaminants.

Lead and mercury are examples of neurotoxins that are known to decrease a child's IQ as well as the ability to concentrate and learn. National incidence of asthma and autism have been rising in children without clear answers as to the cause. The future generations deserve to reach their full potential. It is important that policies be created to protect children from environmental risks. Information gathered through an EPHT Program will assist with informing policy and guiding future research.

**Environmental Protection Agency (EPA) definition.*

Summary of Needs & Recommendations

Five areas are recognized as important to developing an EPHT system in Montana. These areas are: Data Integration; Collaborative Partnerships and Pilot Projects; Outreach and Education; Advocacy and Environmental Justice; and Policy and Legislation.

The Statewide EPHT Advisory Group assisted the program staff in developing a logic model plan and identifying desired outcomes in each of the above catagories. The planning documents will direct us towards the vision of "creating healthy, informed communities." Below are some of the recommendations in each category.

Data Integration

- Develop data standards and geospatial mapping capabilites
- Identify and enhance relevant data sets to allow linkage of datasets when relevant
- Provide better access to data so epidemiologists can examine relationships between health and the environment

Collaborative Partnerships and Pilot Projects

- Expand and evaluate pilot studies
- Collaborate with other state EPHT programs
- Continue to build interagency workgroups

Outreach/Education

- Increase local participation
- Provide training and outreach to an expanded audience
- Promote active information exchange
- Become a recognized source for environmental health information

Advocacy/Environmental Justice

- Include all groups in outreach activites to decrease exposure risks
- Assess environmental justice issues in Montana
- Prioritize outreach based on environmental justice assessment

Policy and Legislation

- Draft model legislation related to EPHT
- Improve access to statewide data to allow improved survellance of chronic disease health trends
- Utilize EPHT pilot study results to inform policy decisions

Many steps have been taken towards developing an EPHT system in Montana. Gaps in the availability of data have been identified, as well as the limitations of currently available data. EPHT will work to enhance access to quality information on environmental health concerns through collaborative efforts with other partners.

Partnerships have been formed between Montana DPHHS and many environmental agencies. The Montana Department of Environmental Quality (DEQ) and the Natural Resource Information System (NRIS) at the Montana State Library have been key partners working on enhancing and mapping data. Several universities in Montana also are playing key roles in conducting research and will continue to serve vital advisory roles. Local health departments and advocacy groups have been and will continue to be important conduits to community concerns across Montana.

To view the complete EPHT strategic planning documents, visit our website: www.dphhs.mt.gov/epht.

Definition of Terms

Environmental Public Health Tracking (EPHT)
The ongoing collection, integration, analysis, and interpretation of data about environmental hazards, exposure to environmental hazards, and human health effects potentially related to exposure to environmental hazards.

Environment
The world around us. It impacts our health through the food we eat, the water we drink, and the air we breathe.

Determinants of Health
Factors that contribute to a healthy state. There are four major categories of factors: heredity, medical care, lifestyle, and environment.

Environmental Hazards
Defined here as chemicals, physical agents and biological toxins that are present in the environment with a known or potential impact on human health. Examples include, but are not limited to, lead, pesticides, mercury, asbestos, arsenic, fine particulate matter, and dioxins.

Environmentally Related Diseases
Chronic diseases, birth defects and developmental delays that may be related to exposure to environmental hazards.

Environmental Public Health
Environmental Public Health focuses on the interrelations between people and their environment, promotes human health and well-being, and fosters a safe and healthful environment.

Environmental Public Health Measures
Indicators or markers that can be assessed over time to see if a situation is improving or getting worse. The ideal environmental health measure can be quantified, is monitored over time, links the environment to health, and is tied to public health objectives. An example is the number of children with elevated blood lead levels. This measure dropped dramatically nationwide after lead was removed from gasoline.

Environmental Justice
No group of people including racial, ethnic, or socioeconomic groups, should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies.

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Additional Resources

National Center for Environmental Health website:
http://www.cdc.gov/nceh

Montana Environmental Public Health Tracking website:
http://www.dphhs.mt.gov/epht

Montana Department of Public Health and Human Services website:
http://www.dphhs.mt.gov

Montana Department of Environmental Quality website:
http://www.deq.mt.gov

Natural Resource Information System
http://nris.state.mt.us

Acknowledgments:
The Montana EPHT Program is funded by the Centers for Disease Control and Prevention (CDC) through cooperative agreement number U50/CCU822453. The contents of this publication are solely the responsibility of the authors and do not necessarily represent the official views of CDC. The project is funded 100% by federal funds. Montana receives approximately $510,000/year to support planning and infrastructure building activities at the state and local levels. We appreciate the collaboration from our partner EPHT states, UC Berkeley EPHT Center of Excellence, University partners at MSU Bozeman College of Nursing and the University of Montana Center for Environmental Health Sciences. Several county and tribal public health departments that have contributed to planning efforts. In addition we would like to acknowledge the Statewide EPHT Advisory Group, which has met approximately quarterly to provide recommendations to the program. Dr. Michael R. Spence, Chief Medical Officer for Montana, was instrumental in the efforts to receive funding for EPHT in Montana and served as the program's principle investigator through December 2004.

This document is supported by Cooperative Agreement Number U50/CCU822453 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the CDC. Alternative accessible formats of this publication will be provided upon request. For further information call 406-444-2596 or TDD 406-444-2590. 1,500 copies of this public document were published at an estimated cost of $2.75 each for a total cost of $4,125.


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